

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Original) A drill head for preparing the bone of two opposing intervertebral bodies to accept a predetermined shape of an endoprosthesis comprising: a form cutter having a profile capable of imparting a shape to the bone of intervertebral bodies which mates with the predetermined endoprosthesis surface shape; drive means for providing a driving force to the form cutter; and means for housing the form cutter and the drive means, wherein the profile of the form cutter is of a height capable of being admitted into the space between two opposing intervertebral bodies and the head can perform milling action in a direction angled away from the direction of head entry into a space between opposed bodies.

2. (Original) The drill head of claim 1 wherein the form cutter has a convex shape.

3. (Original) The drill head of claim 2 wherein the form cutter is provided with a beveled gearing surface.

4. (Original) The drill head of claim 2 wherein the form cutter is provided with a groove about its perimeter.

5. (Original) The drill head of claim 1 wherein the drive means comprises a drive shaft operatively coupling the form cutter to a drive source.

6. (Original) The drill head of claim 5 wherein a distal end of the drive shaft is provided with a pinion gear which cooperates with the form cutter to impart a rotary motion to the form cutter.

7. (Original) The drill head of claim 5 wherein a proximal end of the drive shaft is provided with a coupling means for coupling the drive shaft to the drive source.

8. (Original) The drill head of claim 1 wherein the drive means comprises a belt operatively coupling the form cutter to a drive source.

9. (Original) The drill head of claim 8 wherein the belt loops about the perimeter of the form cutter.

10. (Original) The drill head of claim 8 wherein the drive means further comprises a drive shaft operatively coupled to the belt.

11. (Original) The drill head of claim 10 wherein the drive shaft is provided with a

pulley about which the belt is looped.

12. (Original) The drill head of claim 11 wherein the drive shaft is further provided with a coupling means for coupling the drive shaft to the drive source.

13. (Original) The drill head of claim 1 wherein the housing is provided with attachment means for attaching the drill head to a drive source.

14. (Original) The drill head of claim 1 wherein the maximum height of the profile of the form cutter is approximately nine millimeters.

15. (Original) The drill head of claim 1 where in the cutter is provided with a cutting edge so as to give the drill head the ability to cut in the direction of tool head entry into the space.

16. (Original) A drill head for preparing the bone of two opposing intervertebral bodies to accept the concaval-convex shape of an endoprosthesis comprising: a form cutter having a support shaft capable of imparting a concave shape to the bone of intervertebral bodies; drive means for providing a driving force to the form cutter, the drive means including a drive shaft; and means for housing the form cutter and the drive means, wherein the angle between the support shaft of the form cutter and the drive shaft is approximately 96.degree..

17. (Original) The drill head of claim 16 wherein the form cutter has a predetermined profile.

18. (Original) The drill head of claim 17 wherein the maximum height of the profile of the form cutter is approximately nine millimeters.

19. (Newly Added) An apparatus for preparing an implantation space in the human spine to receive an insert between adjacent vertebral bodies, comprising:
a handle;
a shaft operably connected to said handle,
a drive mechanism adapted to be operably connected to a power source; and
an abrading element operably coupled to a distal end of said shaft for movement by said drive mechanism, said abrading element being moved in a direction different than which said shaft is moved, said abrading element having at least one abrading surface selected to create a predetermined surface contour of the adjacent vertebral bodies as said abrading element is moved by said drive mechanism.

20. (Newly Added) The apparatus of claim 19, wherein said abrading surface includes teeth formed thereon to cooperatively engage said drive mechanism, said drive mechanism and said teeth being configured such that said abrading surface is rotated by said drive mechanism.

21. (Newly Added) The apparatus of claim 19, further comprising a second abrading surface.

22. (Newly Added) The apparatus of claim 21, wherein said abrading surfaces are rotated in opposite directions by said drive mechanism.

23. (Newly Added) The apparatus of claim 21, wherein said abrading element has at least a top abrading surface and a bottom abrading surface.

24. (Newly Added) The apparatus of claim 21, wherein said abrading surfaces are outwardly facing, and said abrading surfaces are inclined relative to one another.

25. (Newly Added) The apparatus of claim 19, wherein said abrading element includes at least two abrading surfaces for simultaneously creating predetermined surface contours on the respective end plates of the adjacent vertebral bodies.

26. (Newly Added) The apparatus of claim 19, wherein said abrading element includes a non-abrading surface formed on a side of said abrading element opposite said abrading surface, said non-abrading surface being configured to allow a surgeon to increase the pressure of said abrading surface against one of the adjacent vertebral bodies.

27. (Newly Added) The apparatus of claim 19, wherein said abrading surfaces is convex.

28. (Newly Added) The apparatus of claim 19, wherein said abrading element has a front surface and is tapered outwardly from said front surface toward said handle.

29. (Newly Added) The apparatus of claim 19, wherein said abrading element includes a leading edge configured as a bone cutting surface.

30. (Newly Added) The apparatus of claim 19, wherein said abrading surface has a

width, said width being adapted to substantially match the width of the nucleus pulposus of a disc space, in which it is inserted.

31. (Newly Added) The apparatus of claim 19, wherein said abrading surface is substantially planar.

32. (Newly Added) The apparatus of claim 19, wherein said abrading surface is configured such that it is generally parallel to said surface contour formed in the vertebral body as said abrading element is moved by said drive mechanism.

33. (Newly Added) The apparatus of claim 19, wherein said abrading element is detachable from said shaft.

34. (Newly Added) The apparatus of claim 19, wherein said abrading element is fixedly connected to said shaft.

35. (Newly Added) The apparatus of claim 19 further comprising a mechanism that couples said abrading element to said drive mechanism.

36. (Newly Added) The apparatus of claim 19, wherein said drive mechanism is disposed at least in part in said handle.

37. (Newly Added) The apparatus of claim 19, wherein said power source is disposed at least in part in said handle.

38. (Newly Added) The apparatus of claim 19, wherein said abrading element is driven in a reciprocating, arcuate motion by said drive mechanism.

39. (Newly Added) The apparatus of claim 19, wherein said abrading element includes a wheel having cutter teeth along its perimeter.

40. (Newly Added) The apparatus of claim 19, wherein said drive mechanism is adapted to produce a rotary movement of said abrading element about an axis generally perpendicular to a longitudinal axis of said shaft and about a general plane of a vertebral end plate of at least one of the adjacent vertebral bodies.

41. (Newly Added) The apparatus of claim 19, wherein said drive mechanism is adapted to produce one of an oscillating rotation and a vibratory motion of the abrading element.

42. (Newly Added) The apparatus of claim 19, wherein said drive mechanism is adapted to produce an oscillating rotation of the abrading element, wherein said oscillating rotation is from 20° to 45° to either side of the longitudinal axis of said shaft.

43. (Newly Added) The apparatus of claim 19, wherein said drive mechanism comprises a gas-driven turbine powered by a source of compressed gas.

44. (Newly Added) The apparatus of claim 19, wherein said drive mechanism is operable to move said abrading element in at least two degrees of freedom.

45. (Newly Added) The apparatus of claim 19, further comprising a suction mechanism for removing bits of debris created by said abrading surface of said abrading element.

46. (Newly Added) The apparatus of claim 19, further comprising an irrigation channel configured through said shaft for delivering irrigation fluid to the surgical site.

47. (Newly Added) The apparatus of claim 19, further comprising at least one stop member adapted to limit the depth of travel of said abrading element into the spine.

48. (Newly Added) The apparatus of claim 19, further comprising an insert adapted to be sized and shaped to match the space formed in the spine by said abrading element.